



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

|  |             |                      |                        |                  |
|--|-------------|----------------------|------------------------|------------------|
| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.    | CONFIRMATION NO. |
| 10/591,815   | 07/24/2007  | Emmanouil Spyrou     | 295783US0X PCT         | 4631             |
| 22850  | 7590        | 01/29/2010           | EXAMINER               |                  |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      | VAN OUDENAREN, SARAH A |                  |
|  |             |                      | ART UNIT               | PAPER NUMBER     |
|  |             |                      | 1793                   |                  |
|  |             |                      | NOTIFICATION DATE      | DELIVERY MODE    |
|  |             |                      | 01/29/2010             | ELECTRONIC       |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

|                              |  |  |  |
|------------------------------|--|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/591,815   | <b>Applicant(s)</b><br>SPYROU, EMMANOUIL |  |
|                              | <b>Examiner</b><br>SARAH VAN OUDENAREN | <b>Art Unit</b><br>1793                  |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 15-21, 24-29 is/are rejected.
- 7) ☒ Claim(s) 4-14, 22, 23, 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

Applicant is reminded of the proper content of an Abstract of the Disclosure.

In chemical patent abstracts for compounds or compositions, the general nature of the compound or composition should be given as well as its use, *e.g.*, "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary.

Complete revision of the content of the abstract is required on a separate sheet.

### ***Claim Objections***

Claims 4-14, 22, 23, and 30 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claims 3-14 and 22. See MPEP § 608.01(n). Accordingly, the claims 4-14, 22, 23, and 30 have not been further treated on the merits.

Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 11 requires tributylphosphonium hydroxide as the catalyst. However, claim 11 depends from claim 10 which requires only tetrabutylphosphonium hydroxide. There is neither mention in the claims nor support in the specification for tributylphosphonium hydroxide. As such, examiner takes the position that the catalyst is intended to be tetrabutylphosphonium hydroxide.

Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 14 further limits component E and depends from claim 1. However, component E is not required until claim 2.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 15-21, and 24-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 21, and 24-27, the use of “based” (line 3) renders the claim indefinite as it is unclear to what extent the curing agent is “based” on or derived from the specified reactants. Further, the language fails to clearly set forth the relationship between the polyisocyanate and hydroxyl-containing compounds. It is unclear if component (A) is a mixture of the polyisocyanate and the hydroxyl-containing compound or a reaction product of the polyisocyanate and the hydroxyl-containing compound. Still further, it is not clear if the language pertaining to cyclic, bicyclic, or tricyclic systems is optional. The use of the language “it being possible” (line 13) renders the claim indefinite because it is unclear to what extent the language denoted

Art Unit: 1793

by “possible” is a definitive limitation. It is unclear what bridging atoms are possible and what are not. The use of the term “may” (line 18) renders the claims indefinite because it is unclear if or to what extent the language denoted by “may” is optional. It is unclear how aliphatic or cycloaliphatic polyisocyanates differ from (cyclo)aliphatic polyisocyanates. Within the art, the term (cyclo)aliphatic, has conventionally been used to specify aliphatic or cycloaliphatic compounds. It is unclear as to what “essentially comprising” (line 1) is intended to include. Such language is considered by examiner to be the equivalent of comprising. The language “a comparable amine content” (line 8) renders the claim indefinite as it is unclear to examiner what constitutes a comparable amine content. As component (B) is optional, it is unclear to examiner how the fraction of catalyst (C) relates to (A) as (B) is optional. The language “high-reactivity” is considered a relative term and renders the claim indefinite as it is not clear what constitutes a high reactivity.

Regarding claim 15, the term “homogenization” (line 22) renders the claim indefinite as it is unclear as to whether homogenization is intended to mean chemically reacting or physically mixing. Further, claim 15 is drawn to a process for preparing a composition; however, as there are no positively recited process steps, claim 15 is rendered indefinite.

Claims 16-17, and 21, provides for the use of a catalyst or composition, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it

Art Unit: 1793

merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 16-17 and 21 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Regarding claim 29, component G) is not defined and therefore renders the claim indefinite.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 15-17, 21 and 24-29 rejected under 35 U.S.C. 103(a) as being unpatentable over Spyrou et al (US 2003/0153713) in view of Bernard et al (US 2003/0125554).

Spyrou teaches a polyurethane composition which contains uretdione groups (0001). Spyrou further teaches a hardening agent which is based on aliphatic, (cyclo) aliphatic, or cycloaliphatic polyisocyanates and hydroxyl-containing compounds having

Art Unit: 1793

a free NCO content of less than 5% by weight and a uretdione content of 6-18% by weight. A hydroxyl- containing polymer having an OH number between 20 and 200 mg KOH/gram and a catalyst (0012-0015) are also included. It is noted that examiner considers a hardening agent comparable to a curing agent. The curing agent in Spyrou comprises isophorone diisocyanate and/or hexamethylene diisocyanate (0013 and 0029). The catalyst is to be present 0.001-1% by weight (0009 and 0039-0040).

While Spyrou does include a catalyst, there is not explicit mention of a phosphorous based catalyst.

Bernard teaches a method of cyclotrimerization of isocyanate functions by action of a catalyst based on quaternary ammonium or phosphonium (see abstract). Bernard teaches IPDI being used with a catalyst tetrabutylphosphonium (TBP) in the form of a hydroxide (0101 and table 1). TBP as a hydroxide is recognized to meet the formulaic requirements of component C in the instant claim.

It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize that TBP is capable of curing a polyurethane composition and it further would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a known catalyst with said capabilities.

Regarding claim 2, Spyrou teaches a monomeric acid compound present in minor amounts and being based on the way polyesters are prepared (0037).

Regarding claim 3, Spyrou teaches various additives being present (0039).

Regarding claim 15, Spyrou teaches homogenization of all ingredients for preparation of the composition. Further, Spyrou teaches a polyurethane composition

Art Unit: 1793

which contains uretdione groups (0001). Spyrou further teaches a hardening agent which is based on aliphatic, (cyclo) aliphatic, or cycloaliphatic polyisocyanates and hydroxyl-containing compounds having a free NCO content of less than 5% by weight and a uretdione content of 6-18% by weight. A hydroxyl-containing polymer having an OH number between 20 and 200 mg KOH/gram and a catalyst (0012-0015) are also included. It is noted that examiner considers a hardening agent comparable to a curing agent. The curing agent in Spyrou comprises isophorone diisocyanate and/or hexamethylene diisocyanate (0013 and 0029). The catalyst is to be present 0.001-1% by weight (0009 and 0039-0040).

While Spyrou does include a catalyst, there is not explicit mention of a phosphorous based catalyst.

Bernard teaches a method of cyclotrimerization of isocyanate functions by action of a catalyst based on quaternary ammonium or phosphonium (see abstract). Bernard teaches IPDI being used with a catalyst tetrabutylphosphonium (TBP) in the form of a hydroxide (0101 and table 1). TBP as a hydroxide is recognized to meet the formulaic requirements of component C in the instant claim.

It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize that TBP is capable of curing a polyurethane composition and it further would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a known catalyst with said capabilities.



Regarding claim 16, Spyrou as modified by Bernard as discussed above teach both the catalyst and a use in the preparation of the polyurethane composition discussed above.

Regarding claim 17, Bernard teaches TBP in hydroxide form being utilized as the catalyst (0101 and table 1).

Regarding claim 21, the composition of Spyrou as modified by Bernard has been discussed above. Spyrou teaches the composition to be used as a coating composition (0019).

Regarding claims 24-27, Spyrou teaches the composition discussed above as modified by Bernard to be specially utilized in metal coating, wood coating, leather coating, and plastics coating (0018-0020).

Regarding claim 28, Spyrou teaches the metal coating to be especially for automobile bodies, motorbikes, bicycles, construction components, and household appliances (0020).

Regarding claim 29, Spyrou teaches a monomeric acid compound present in minor amounts and being based on the way polyesters are prepared (0037).

### ***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1793

Claims 18-20 rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bernard et al (US 2003/0125554).

Bernard teaches a method of cyclotrimerization of isocyanate functions by action of a catalyst based on quaternary ammonium or phosphonium (see abstract). Bernard teaches IPDI being used with a catalyst tetrabutylphosphonium (TBP) in the form of a hydroxide (0101 and table 1). TBP as a hydroxide is recognized to meet the formulaic requirements of the instant claim. It is noted that while the preamble recites "for accelerating the curing of a polyurethane composition" this is considered intended use.

Alternatively, although Bernard does not explicitly teach the catalyst being used for curing a polyurethane component, it would have been obvious to one of ordinary skill in the art at the time of the invention to recognize that TBP hydroxide would clearly be suitable for curing a polyurethane composition.

Regarding claims 19-20, Bernard teaches TBP in hydroxide form (0101 and table 1).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARAH VAN OUDENAREN whose telephone number is (571)270-5838. The examiner can normally be reached on Monday-Thursday, 9:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone

Art Unit: 1793

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SARAH VAN OUDENAREN/  
Examiner, Art Unit 1793  
January 21, 2010

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793